ACC.14
TCT@ACC-i2 | innovation in intervention

A1205
JACC April 1, 2014
Volume 63, Issue 12

Non Invasive Imaging

A SYSTEMATIC COMPARATIVE ASSESSMENT OF ECHOCARDIOGRAPHIC PARAMETERS FOR DETERMINING MITRAL REGURGITATION SEVERITY

Poster Contributions
Hall C
Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Non-Coronary Cardiac CT
Abstract Category: 18. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
Presentation Number: 1212-60

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Background: Guidelines suggest the use of quantitative and semi-quantitative echocardiographic (ECHO) methods to assess mitral regurgitation (MR) severity. There has been no systematic evaluation of these ECHO parameters against a reference.

Methods: We studied 69 pts (59 ± 15yrs, 51% male) with MR who were evaluatied with ECHO and cardiovascular magnetic resonance (CMR). Quantitative and semi-quantitative ECHO parameters were measured for each pt. On CMR, the MR volume was the difference between left ventricular stroke volume and forward flow. Individual ECHO parameters were compared to CMR and a best-fit model was determined.

Results: ECHO parameters that correlated best with CMR were vena contracta (VC) ($r = 0.6$, $p < 0.05$), EROA ($r = 0.56$, $p < 0.0001$), proximal isovelocity surface area ($r = 0.53$, $p < 0.05$), MR volume ($r = 0.50$, $p < 0.05$), and the presence of structural leaflet abnormality (flail or prolapse) ($r = 0.54$, $p < 0.05$). A backward elimination multivariate linear regression analysis of ECHO parameters showed that a best-fit model of EROA, VC, and the presence of a leaflet abnormality was a better predictor of MR volume by CMR (overall model $r = 0.7$, $p < 0.05$). (figure).

Conclusions: Quantitative ECHO parameters of MR were the best predictors of MR severity using volumetric assessment by CMR. The model that best predicted MR volume by CMR included VC, EROA, and structural leaflet abnormality. Not all of the recommended ECHO measures of MR severity were helpful in predicting MR volume by CMR.